# PATENT ABSTRACTS OF JAPAN
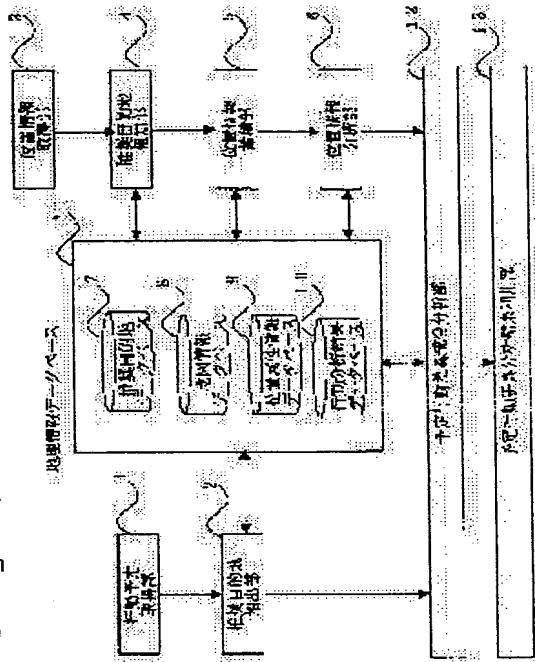
## (54) NAVIGATION DEVICE FOR TRAVELING OBJECT

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a traveling object navigation device for collecting, analyzing, and working information from the terminal of a traveling object such as a portable telephone, a portable terminal, or a car navigation system, and for distributing various information associated with the navigation to the terminal of the traveling object, and to contribute to the analysis of the action of a user, the support of the action of the user, and the convenience of advertising activity.

SOLUTION: A geographical information data base 11 which is provided with a recommended destination data base 7, a map information data base 8, a position attribute information data base 9, and an action analytic result data base 10 is used, and the recommended destination is announced by a recommended destination announcing part 4, and a difference between planned action and actual action is analyzed by a planned action difference integral analyzing part 12.

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## CLAIMS

[Claim(s)]
[Claim 1] It is mobile navigation equipment which connects with a mobile terminal through a network and carries out navigation of the mobile. The recommendation destination database in which the destination recommended to the mobile navigation equipment (1) user characterized by having the following elements is mentioned, The map information database in which map information was mentioned, and an individual attribute and the location attribute information database in which positional information is mentioned, The action schedule by which the action schedule acquisition section (3) input which inputs the action schedule of the geographic information database (2) user having the behavior analysis result database in which the result of having analyzed individual action record is mentioned was carried out, It is based on a map information database, a location attribute information database, and a behavior analysis result database. The current position which extracted the destination to recommend and carried out the positional information acquisition section (5) acquisition which acquires the current position of the recommendation destination extract section (4) mobile which stores the destination to recommend in a recommendation destination database, The positional information are recording section (7) location attribute information database which records the current position of the recommendation destination information section (6) mobile which reports the destination to recommend based on a recommendation destination database on a location attribute information database, The positional information as a stay location arranged by the positional information analyzor (8) positional-information analyzor which outputs the positional information arranged as a user's stay location based on a map information database, It is based on action schedule and recommendation destination database of the user who inputted by the action schedule acquisition section. The schedule action variance-analyses result utilization section using the analysis result by the schedule action difference integrated analyzor (9) schedule action difference integrated analyzor which the difference between a schedule and actual action is analyzed [ analyzor ] and stores an analysis result in a behavior analysis result database.
[Claim 2] It is mobile navigation equipment which connects with a mobile terminal through a network and carries out navigation of the mobile. The recommendation destination database in which the destination to the mobile navigation equipment (1) user characterized by having the following elements to recommend is mentioned, The map information database in which map information was mentioned, and an individual attribute and the location attribute information database in which positional information is mentioned, Individual action record The analyzed result The behavior analysis result database to record The action schedule inputted by the positional information are recording section (5) action schedule acquisition section which records the current position of the positional information acquisition section (4) mobile which acquires the current position of the action schedule acquisition section (3) mobile which inputs a geographic information database (2) user's action schedule which it had on a location attribute information database, The action schedule analysis inference result utilization section which uses the prediction result by the action schedule analysis inference section (6) action schedule analysis inference section which predicts the future migration place of a mobile based on the current position, map information database, and behavior analysis result database of the mobile

acquired by the positional information acquisition section.

[Claim 3] It is mobile navigation equipment which connects with a mobile terminal through a network and carries out navigation of the mobile. The map information database in which the mobile navigation equipment (1) map information characterized by having the following elements was mentioned, An individual attribute and the location attribute information database in which positional information is mentioned, The positional information are recording section (4) location attribute information database which records the current position of the positional information acquisition section (3) mobile which acquires the current position of the geographic information database (2) mobile equipped with the behavior pattern database in which an individual behavior pattern is mentioned on a location attribute information database, The positional information as a stay location arranged by the positional information analyzor (5) positional-information analyzor which outputs the positional information arranged as a user's stay location based on a map information database, The behavior pattern analysis result utilization section using the extract result by the behavior pattern analyzor (6) behavior-pattern analyzor which carries out the behavior pattern database storage of the behavior pattern which extracted and extracted the behavior pattern of a mobile based on the map information database.

[Claim 4] It is mobile navigation equipment which connects with a mobile terminal through a network and carries out navigation of the mobile. The map information database in which the mobile navigation equipment (1) map information characterized by having the following elements was mentioned, An individual attribute, the location attribute information database in which positional information is mentioned, and the behavior pattern database in which an individual behavior pattern is mentioned, The positional information of the positional information are recording section (4) mobile which records the current position of the positional information acquisition section (3) mobile which acquires the current position of the geographic information database (2) mobile equipped with the location linkage advertising database with which the advertisement of a nearby store can be searched from positional information on a location attribute information database, It is based on a map information database, a location attribute information database, and a behavior pattern database. The advertising information section which acquires an advertisement from a location linkage advertising database, and is distributed to a mobile terminal based on the prediction result by the current behavior analysis section (5) current behavior analysis section which predicts the next action.

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[Translation done.]

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## DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to that analytical method and the distribution
approach about the service which distributes the information which collected, analyzed and
processed the information on mobiles, such as a cellular phone, and a personal digital assistant,
a car-navigation system, to each mobile.
[0002]
[Description of the Prior Art] Drawing 20 is the conventional example of the configuration of the
mobile navigation technique of a class of mainly offering store information and sightseeing
information using a cellular phone. In a personal digital assistant side, it has the positional
information acquisition transmitting means 101, the retrieval condition input means 102, and an
information-display means 103 to display a navigation result. In a positional information server
(henceforth server) side, it has a positional information acquisition means 104 to acquire the
positional information of a personal digital assistant, and a retrieval means 105 to search the
geography database 106 based on the conditions from a personal digital assistant side.
[0003] Next, actuation is explained. In a personal digital assistant side, currency information is
transmitted to a server side using the positional information acquisition transmitting means 101,
the retrieval conditions of a store or a sightseeing spot to look for with the condition input
means 102 are inputted, and it is transmitted to a server side. In a server side, the current
position is acquired with the positional information acquisition means 104, and based on the
inputted retrieval conditions, the retrieval means 105 searches the advertising database 106
with which positional information and store information are recorded on the pair by becoming,
and returns the result of having corresponded to a personal digital assistant. The returned
result and its incidental information are expressed as the information-display means 103 of a
personal digital assistant. Incidental information shows the recommended store or
"recommended" sightseeing spot in the current position.
[0004] Drawing 21 is the conventional example of the configuration of the mobile navigation
technique of a class which mainly shows the path to the destination using a car-navigation
system. In a personal digital assistant side, it has the positional information acquisition
transmitting means 107, the destination input means 108, and a path display means 109 to
display a navigation result. In a server side, it has the positional information acquisition means
110 of a personal digital assistant, and a retrieval means 111 to search the map database 112
based on the conditions from a personal digital assistant side.
[0005] Next, actuation is explained. In a personal digital assistant side, currency information is
transmitted to a server side using the positional information acquisition transmitting means 107,
the location of the destination is inputted with the destination input means 108, and it is
transmitted to a server side. In a server side, the current position is acquired with the positional
information acquisition means 110, and based on the positional information of the destination
inputted as it, the path planning means 111 looks for the map database 112, and returns the
result to a personal digital assistant. As a result of being returned, it is expressed as the path
display means 109 of a personal digital assistant as the "shortest path" recommended on a

map.

[0006] <u>Drawing 22</u> is the block diagram of the property extractor of a mobile shown by JP,2000–155757,A. It has the visit data acquisition section 113, the map information database 114, the visit hysteresis database 115, the special case extract section 116, and the extract property use section 117. The visit data acquisition section 113 pulls out the location data of the current position by collating the location data and the map information database 114 which were measured. Moreover, the situation of having visited the current position is measured and it considers as situation data. These location data and situation data are associated and it accumulates in the visit hysteresis database 115. The property extract section 117 extracts properties, such as a migration pattern of a mobile, or taste, by analyzing the stored visit data. The extract property use section 116 carries out processing using the property extracted according to the set-up use Ruhr.

[0007]
[Problem(s) to be Solved by the Invention] Above-mentioned mobile navigation equipment is performing navigation for the mobiles which offer the information on path planning, a recommendation store, etc. based on the geographic information and store information (namely, advertisement) which were prepared beforehand, and is not a thing reflecting an individual property, the trend with many same attributes of people, etc. Moreover, in the equipment which performs a property extract from an individual's action, it is only analyzing results, such as the attribute of a mobile, and relation of a visit location, and an individual's action cannot meet the demand of analysis how to have changed, in the situation that the event started intentionally and the event generated accidentally are intermingled at the beginning, as compared with a schedule.

[0008] Moreover, it distributed in the user whom advertising effectiveness regards as higher and puts, and the situation which effectiveness looks at and puts, and it is [ direction ] efficient and the conventional example cannot respond to such a demand rather than it distributes information to many and unspecified persons also for the side which offers information including an advertisement.

[0009] It was made in order that this invention might solve the above troubles, and an action schedule input is carried out in advance, and it aims at making the result in which an individual hobby idea and the effect by the event were made to reflect by analyzing the difference between it and an actual action result output. Moreover, it aims at offering the mobile navigation which has effect effective in a user's action by offering a means to extract the object which guesses an individual action trend from an action schedule and a current location, and offers the flow as information, or distributes an advertisement.

[0010]
[Means for Solving the Problem] The mobile navigation equipment concerning this invention is connected with a mobile terminal through a network. The recommendation destination database in which the destination recommended to (1) user who is mobile navigation equipment which carries out navigation of the mobile, and is characterized by having the following elements is mentioned, The map information database in which map information was mentioned, and an individual attribute and the location attribute information database in which positional information is mentioned, The action schedule by which the action schedule acquisition section (3) input which inputs the action schedule of the geographic information database (2) user having the behavior analysis result database in which the result of having analyzed individual action record is mentioned was carried out, It is based on a map information database, a location attribute information database, and a behavior analysis result database. The current position which extracted the destination to recommend and carried out the positional information acquisition section (5) acquisition which acquires the current position of the recommendation destination extract section (4) mobile which stores the destination to recommend in a recommendation destination database, The positional information are recording section (7) location attribute information database which records the current position of the recommendation destination information section (6) mobile which reports the destination to

recommend based on a recommendation destination database on a location attribute information database, The positional information as a stay location arranged by the positional information analyzor (8) positional-information analyzor which outputs the positional information arranged as a user's stay location based on a map information database, It is based on action schedule and recommendation destination database of the user who inputted by the action schedule acquisition section. The schedule action variance-analyses result use section using the analysis result by the schedule action difference integrated analyzor (9) schedule action difference integrated analyzor which the difference between a schedule and actual action is analyzed [ analyzor ] and stores an analysis result in a behavior analysis result database.

[0011] The mobile navigation equipment concerning this invention is connected with a mobile terminal through a network. The recommendation destination database in which the destination to (1) user who is mobile navigation equipment which carries out navigation of the mobile, and is characterized by having the following elements to recommend is mentioned, The map information database in which map information was mentioned, and an individual attribute and the location attribute information database in which positional information is mentioned, Individual action record The analyzed result The behavior analysis result database to record The action schedule inputted by the positional information are recording section (5) action schedule acquisition section which records the current position of the positional information acquisition section (4) mobile which acquires the current position of the action schedule acquisition section (3) mobile which inputs a geographic information database (2) user's action schedule which it had on a location attribute information database, The action schedule analysis inference result use section which uses the prediction result by the action schedule analysis inference section (6) action schedule analysis inference section which predicts the future . migration place of a mobile based on the current position, map information database, and behavior analysis result database of the mobile acquired by the positional information acquisition section.

[0012] The mobile navigation equipment concerning this invention is connected with a mobile terminal through a network. The map information database in which (1) map information which is mobile navigation equipment which carries out navigation of the mobile, and is characterized by having the following elements was mentioned, An individual attribute and the location attribute information database in which positional information is mentioned, The positional information are recording section (4) location attribute information database which records the current position of the positional information acquisition section (3) mobile which acquires the current position of the geographic information database (2) mobile equipped with the behavior pattern database in which an individual behavior pattern is mentioned on a location attribute information database, The positional information as a stay location arranged by the positional information analyzor (5) positional-information analyzor which outputs the positional information arranged as a user's stay location based on a map information database, The behavior pattern analysis result use section using the extract result by the behavior pattern analyzor (6) behavior-pattern analyzor which carries out the behavior pattern database storage of the behavior pattern which extracted and extracted the behavior pattern of a mobile based on the map information database.

[0013] The mobile navigation equipment concerning this invention is connected with a mobile terminal through a network. The map information database in which (1) map information which is mobile navigation equipment which carries out navigation of the mobile, and is characterized by having the following elements was mentioned, An individual attribute, the location attribute information database in which positional information is mentioned, and the behavior pattern database in which an individual behavior pattern is mentioned, The positional information of the positional information are recording section (4) mobile which records the current position of the positional information acquisition section (3) mobile which acquires the current position of the geographic information database (2) mobile equipped with the location linkage advertising database with which the advertisement of a nearby store can be searched from positional information on a location attribute information database, It is based on a map information

database, a location attribute information database, and a behavior pattern database. The advertising information section which acquires an advertisement from a location linkage advertising database, and is distributed to a mobile terminal based on the prediction result by the current behavior analysis section (5) current behavior analysis section which predicts the next action.

[0014]

[Embodiment of the Invention] Gestalt 1. drawing 1 of operation is drawing showing the example of the structure of a system concerning the gestalt 1 of operation. The recommendation destination extract section which 1 accesses the action schedule acquisition section, and 2 accesses a geographic information database, and extracts the recommendation destination in drawing 1 , The positional information acquisition section from which 3 acquires the currency information of a mobile, the recommendation destination information section reported for 4 to become near the destination extracted in the recommendation destination extract section 2 to a personal digital assistant, The positional information are recording section which accumulates the positional information from which 5 was acquired by the positional information acquisition section 3, The recommendation destination database in which the positional information analyzor which arranges the positional information in which 6 was accumulated, and the information from which 7 was extracted in the recommendation destination extract section 2 were mentioned, The map information database in which 8 began the map and general map information, such as store information, was mentioned, The location attribute information database with which the attribute and positional information of a mobile are mentioned in 9, The behavior analysis result database with which arrangement analysis of 10 was carried out by the positional information analyzor 6 and the schedule action difference integrated analyzor 12, The geographic information database with which these [ 7 ] thru/or the database of 10 were mentioned in 11, the schedule action difference integrated analyzor as which 12 analyzes the difference between a schedule and an action result, and 13 are the schedule action variance-analyses result use sections using the result.

[0015] Next, actuation is explained. First, when the user is going to go with the personal digital assistant before going out after this, he inputs the action which it is going to perform. The identifier of the concrete destination is sufficient and "he seeing a movie" or the vague text "buy clothes" is sufficient. If this schedule information is acquired in the action schedule acquisition section 1, the recommendation destination extract section 2 will access the geographic information database 11, and will extract the destination to the schedule for today to recommend. The extracted destination is recorded on the geographic information database 11 (recommendation destination database 7).

[0016] Then, a user possesses a personal digital assistant and goes out. In the meantime, the positional information which the user is moving is always measured at fixed spacing, and is sent to the positional information acquisition section 3. The positional information is accumulated by the positional information are recording section 5 via the recommendation destination information section 4 to the geographic information database 11 (location attribute information database 9). The recommendation destination information section 4 which is supervising a user's current position and geographic information database 11 reports that, when a user enters near the recommendation destination. For example, a message is sent to a personal digital assistant. This processing is repeated, while a user possesses a personal digital assistant and is moving.

[0017] When a user returns from going out and turns off a personal digital assistant, in a server side, it analyzes based on the positional information accumulated by old going out. The positional information analyzor 6 grasps first at which store and sightseeing spot I stayed based on the accumulated positional information, time information, and the geographic information database 11. Next, the schedule action difference integrated analyzor 12 checks adjustment of the item of the schedule inputted before going out, and the store and spot which actually dropped in. The result is recorded on the geographic information database 11 (behavior analysis result database 10), and is made to reflect in the extract of the recommendation destination to

next going out. The inclination about a certain user individual is accumulated by this repeat. For example, it acts to the inclination of a prior schedule, the inclination of the action [ itself ], and as planned, or a schedule is disregarded, and it acts in many cases, or is whether there is nothing in many cases surroundings **** in surroundings ****** as planned.

[0018] Moreover, a series of above actuation is performed to many users. Consequently, the result which the schedule action difference integrated analyzor 12 outputs also serves as a large number, they are totaled and the analysis for every attribute is attained. In the schedule action variance-analyses result use section 13, total and analysis of such data are performed, and use to marketing etc. is performed. For example, it advertizes in advance about public presentation of a certain movie, and suppose that advertisement which is [ poster ] further conspicuous at the main station front was performed. About the person who inputted into the schedule when he saw the movie beforehand, and the person who changed the schedule and saw the movie although not inputted into a schedule, the number for every sex and age group of the is known, and the effectiveness by prior advertisement and the effectiveness of advertisement before a main station can be grasped for every attribute.

[0019] In addition, the user itself can see the output as a result of the schedule action difference integrated analyzor 12 as collateral which offers the information on its action schedule or an action result. For every attribute, since a total and analysis are possible, the thing which has become the center of attention by people of the same age, or a spot outputs the result which receives a demand called something.

[0020] Here, each element which constitutes this system is explained.

[0021] Drawing 2 is drawing showing the example of a configuration of the action schedule acquisition section 1 of this invention. For 27, as for the morphological analysis section and 29, in drawing 2 , the character string input section and 28 are [ the keyword extraction section and 30 ] kind ******** databases.

[0022] Next, actuation is explained. The input of a schedule of a user is received in the character string input section 27. What is depended on a text as an input, the thing to depend on a tabular format are received. Next, the word which inputs the character string into the morphological analysis section 28, and can mainly serve as keywords, such as a noun, a proper noun, and a verb, from the text of the inputted schedule is acquired. The procedure of morphological analysis uses the approach from the former learned widely. By the keyword extraction section 29, it is developed with reference to the kind ******** database 30 by not only a word but the synonym and related term which were inputted, and the extracted word is outputted to the recommendation destination extract section 2.

[0023] Drawing 3 is drawing showing the example of a configuration of the recommendation destination extract section 2 of this invention. As for the keyword input section and 32, in drawing 3 , 31 is [ the destination optimization section and 33 ] the decision recommendation destination information output sections. Moreover, the recommendation destination database in which the information from which 7 was extracted in the recommendation destination extract section 2 was mentioned, the map information database in which 8 began the map and general map information, such as store information, was mentioned, the location attribute information database with which the attribute and positional information of a mobile are mentioned in 9, and 10 are the behavior-analysis result databases in which arrangement analysis was carried out by the positional information analyzor 6 and the schedule action difference integrated analyzor 12.

[0024] Next, actuation is explained. The keyword about the schedule extracted in the action schedule acquisition section 1 of the preceding paragraph is received in the keyword input section 31. Based on the keyword, the keyword input section 31 retrieves the name of a place, the store information registered, and sightseeing information on a map with reference to the map information database 8, and extracts the corresponding destination candidate. The extracted destination candidate attaches at least choice or order, and the destination optimization section 32 acts as him. In the destination optimization section 32, a user individual's attribute information is acquired with reference to the location attribute information database 9, and the Ruhr, such as the past inclination (for example, although planned, the

limping gait, the location which was not and the location which a majority of these generations are visiting, or this generation is not actually visiting), is applied and optimized with reference to the behavior analysis result database 10. A user is made to choose, or it is the management side of a server to what kind of the Ruhr priority is given, and it determines beforehand and applies. The recommendation destination which finally remained here is recorded on the recommendation destination database 7 by the decision recommendation destination information output section 33 while displaying it on a user's personal digital assistant.

[0025] Here, the example of a configuration of the geographic information database 11 is explained. Drawing 4 is drawing in which in the example of a configuration of the recommendation destination database 7, and drawing 5 the example of a configuration of the map information database 8 and drawing 6 show the example of a configuration of the location attribute information database 9, and drawing 7 shows the example of a configuration of the . behavior analysis result database 10.

[0026] The recommendation destination database 7 which shows an example to drawing 4 is generated by the recommendation destination extract section 2 mentioned above. It is constituted by each user individual's recommendation destination information 22 classified by individual. Each people another recommendation destination information 22 is constituted by personal attribute information and the recommendation destination information according to date. Personal attribute information is constituted by the discernment ID used for a name, age, an occupation, and internal processing. The recommendation destination information according to date is constituted by enumeration of the date, the LAT LONG of the recommendation destination, and the destination information 23. The destination information 23 is constituted by the name of the destination, the introduction sentence, the inputted schedule sentence from the first that will recommend this destination.

[0027] The map information database 8 which shows an example to drawing 5 must be beforehand prepared at the time of this system operation. It consists of spot information, such as map information and store information, sightseeing information, and event information. Map information can specify the point on a map by assignment of LAT LONG, and if it specifies the point on a map further, it has composition which can acquire LAT LONG. Spot information, such as store information, sightseeing information, and event information, is constituted by a name, the LAT LONG of a location, and the introduction sentence.

[0028] The location attribute information database 9 which shows an example to drawing 6 is constituted by each user individual's location attribute information 24 classified by individual. Each people another location attribute information 24 consists of enumeration of individual attribute information and positional information. Personal attribute information is constituted by ID used for a name, age, an occupation, and internal processing, and this is a management side beforehand and needs to be inputted. Positional information is managed for every date and constituted by enumeration of the group of time of day and LAT LONG. Positional information is registered by the positional information are recording section 5.

[0029] The behavior analysis result database 10 which shows an example to drawing 7 is outputted by the schedule action difference integrated analyzor 12. It is constituted by the success or failure of time, personal attribute information, a schedule, an action result, and a schedule and an action result.

[0030] Then, a user inputs a schedule and the actuation after possessing a personal digital assistant and going out is explained. The positional information acquisition section 3 acquires the current position of a personal digital assistant, i.e., a user's current position, at a certain fixed spacing. The acquisition approach is based on the approach generally used from the former. The approach by the personal digital assistant which carried out the internal organs of the Global Positioning System (GPS) equipment, the positioning approach by the received electric wave of the base station of a cellular phone, etc. have embraced the class of terminal, and have the approach of shoes. Here, if it is the approach of acquiring time of day, the LAT, and LONG, the approach of arbitration will be considered as adoption.

[0031] Drawing 8 is drawing showing the example of a configuration of the recommendation

destination information section 4 of this invention. For 34, as for the information decision section and 36, in drawing 8 , the positional information input section and 35 are [ the information output section and 7 ] recommendation destination databases.

[0032] Next, actuation is explained. The positional information acquired in the positional information acquisition section 3 is received in the positional information input section 34. Positional information is used as a key by the information decision section 35, the recommendation destination database 7 is accessed, and it searches whether there is any nearby thing in the recommendation destination. Decision of being nearby prepares the threshold by the LAT difference of longitude by the system side. When there is a recommendation destination which corresponds in it, the information output section 36 reports to a user's personal digital assistant. Although the information approach is based on the class of personal digital assistant, the general approach from the former, such as telephoning and sending an electronic mail for example, is used for it. The positional information itself received as an input is outputted to the positional information are recording section 5 as it is.

[0033] The positional information are recording section 5 saves the positional information which is the output of the recommendation destination information section 4 to the field to which reception and the location attribute information database 9 correspond. The processing from the positional information acquisition section 3 to the positional information are recording section 5 is continued until a user goes home from a going-out place and turns off a personal digital assistant.

[0034] Then, the example of operation after going home from going out whose user had a personal digital assistant etc. stops action is explained. Drawing 9 is drawing showing the example of a configuration of the positional information analyzor 6 of this invention. For the analysis initiation decision section and 38, as for the positional information arrangement integrated result output section and 9, in drawing 9 , the positional information arrangement integrated section and 39 are [ 37 / a location attribute information database and 8 ] map information databases.

[0035] Next, actuation is explained. In the analysis initiation decision section 37, it judges [ whether analysis of the specific individual user for a day should be started on the day, and ] based on a halt of the positional information input from a user's personal digital assistant, and information, such as powering off. When it is judged that analysis may be started, the positional information arrangement integrated section 38 operates next. The positional information arrangement integrated section 38 collates at which location I actually stayed based on the information on the LAT LONG simply accumulated in the location attribute information database 9 with the positional information of each spot contained in the store information and sightseeing information on the map information database 8, and distinguishes it. Although the positional information of a mobile is acquired at fixed spacing and a user's migration means needs to adjust the spacing, it can judge [ having dropped in and ] whether I stayed for a while by the range of fluctuation of the positional information. Moreover, since the information on time of day is also included in positional information, not only distinction of having stayed but it can judge how much carried out time amount stay. The positional information arranged as a user's stay location such is outputted by the positional information arrangement integrated result output section 39.

[0036] Drawing 10 is drawing showing the example of a configuration of the schedule action difference integrated analyzor 12 of this invention. For the positional information arrangement integrated data input section and 41, as for the behavior analysis result output section and 7, in drawing 10 , a schedule action difference comparator and 42 are [ 40 / a recommendation destination database and 8 ] behavior analysis result databases.

[0037] Next, actuation is explained. The data which carried out arrangement integration of the positional information created by the positional information analyzor 6 of the preceding paragraph are received in the positional information arrangement integrated data input section 40, and are inputted into the schedule action difference comparator 41. The schedule action difference comparator 41 searches for a difference with reference to the recommendation

destination database 7 with which the destination recommended based on the schedule and it which the user inputted as the action result is recorded. For example, although the schedule "Chinese food is eaten" was realized by the positional information arrangement integrated data in which the character strings inputted as a schedule are "Chinese food's being eaten" and "buying clothes", and the result of having actually acted is shown when the result was "Chinese A ****" stay and "B movie theater" stay, it is judged that "he buys clothes" is not realized. Moreover, it turns out that he saw the movie as unexpected action in "B movie theater." Thus, the behavior analysis result output section 42 outputs the distinguished result to the behavior analysis result database 10, and outputs it to the schedule action variance-analyses result use section 13 further.

[0038] The schedule action variance-analyses result use section 13 searches and uses what accumulated the data created by the above-mentioned schedule action difference integrated analyzor 12, when this invention explained until now is operated for many users. A search key searches the item of a behavior analysis result database for the date, an attribute, an age group, etc. as a key.

[0039] Offer to the third person who wants to use for marketing as macro data, the new discovery of a store of this retrieval which a user does not perceive epidemia of the people-of-the-same-age group, or he has not performed are possible for using as a trend information tool.

[0040] Although the gestalt 1 of gestalt 2. implementation of operation showed the use gestalt of inputting an action schedule in advance, and analyzing and referring to an actual action result subsequently, with the gestalt of this operation, an action schedule is inputted in advance and the gestalt in the case of guessing and using the next migration direction during action is shown. Drawing 11 is drawing showing the example of the structure of a system concerning the gestalt 2 of operation. The positional information acquisition section from which 1 acquires the action schedule acquisition section and 3 acquires the currency information of a mobile in drawing 11 , The positional information are recording section which accumulates the positional information from which 5 was acquired by the positional information acquisition section 3, The recommendation destination database in which the information extracted in the recommendation destination extract section 2 which showed 7 to the gestalt 1 of operation was mentioned, The map information database in which 8 began the map and general map information, such as store information, was mentioned, The location attribute information database with which the attribute and positional information of a mobile are mentioned in 9, The behavior analysis result database in which arrangement analysis was carried out by the positional information analyzor 6 and the schedule action difference integrated analyzor 12 which showed 10 to the gestalt 1 of operation, The geographic information database with which these [ 7 ] thru/or the database of 10 were mentioned in 11, the action schedule analysis inference section which 14 guesses that the next migration direction is from an action schedule and a geographic information database, and 15 are the action schedule analysis inference result use sections using that result.

[0041] Next, actuation is explained. First, when the user is going to go with the personal digital assistant before going out after this, he inputs the action which it is going to perform. The identifier of the concrete destination is sufficient and "his seeing a movie" and the vague text "buy clothes" are sufficient. If this schedule information is acquired in the action schedule acquisition section 1, it will transmit to the action schedule analysis inference section 14 mentioned later.

[0042] Then, a user possesses a personal digital assistant and goes out. In the meantime, the positional information which the user is moving is always measured at fixed spacing, and is sent to the positional information acquisition section 3. The positional information is outputted to the action schedule analysis inference section 14 while accumulating it to the geographic information database 11 by the positional information are recording section 5. In the action schedule analysis inference section 14, the direction where the user is going to go to the degree from the his present location is guessed with reference to the inputted schedule,

currency information, and the geographic information database 11. This processing is repeated, while a user possesses a personal digital assistant and is moving.

[0043] A series of above actuation is performed to many users. Consequently, as for the output of the action schedule analysis inference section 14, only the number of many users is prepared. A user can access the action schedule analysis inference result use section 15 at any time, and can display the whole trend of many users other than himself on a personal digital assistant side. The set of a user made into the object of a display can filter attributes, such as sex and an age group, as conditions, and can display them. Thereby, the inclination of the intention of carrying out what kind of action themselves and the man of the same age having taken now what after this is displayed, and the other side or this store can take [ . ] action of avoiding since it is likely to be crowded, in the location considered that the user is having a large custom between the same ages. Moreover, with a user, an action trend can be independently regarded on real time as a marketing tool to the ensemble to whom a server side also corresponds to specific conditions.

[0044] Here, each element which constitutes this system is explained.

[0045] The example of a configuration of the action schedule acquisition section 1 is as having been shown in drawing 2 . The same actuation as the actuation explained with the gestalt 1 of operation is performed. That is, in the character string input section 27, the keyword which received the input of a schedule of a user and was developed by not only the inputted word but the synonym and the related term is outputted.

[0046] Then, a user inputs a schedule and the actuation after possessing a personal digital assistant and going out is explained. The positional information acquisition section 3 performs the same actuation as the actuation which also explained this with the gestalt 1 of operation. The current position of a personal digital assistant, i.e., a user's current position, is acquired at a certain fixed spacing. The acquisition approach is similarly depended on the approach generally used from the former.

[0047] The positional information are recording section 5 also performs the same actuation as the actuation explained with the gestalt 1 of operation. The positional information which is the output of the positional information acquisition section 3 is saved to the field to which reception and the location attribute information database 9 correspond.

[0048] Drawing 12 is drawing showing the example of a configuration of the action schedule analysis inference section 14 of this invention. drawing 12 — setting — 31 — the keyword input section and 43 — for the action schedule decision section and 46, as for a location attribute information database and 8, the action schedule analysis inference result output section and 9 are [ the just before positional information input section and 44 / the movement vector generation section and 45 / a map information database and 10 ] behavior analysis result databases.

[0049] Next, actuation is explained. In the just before positional information input section 43, the current positional information which came to hand through the positional information are recording section 5 from the positional information acquisition section 3 is acquired first. Then, with reference to the location attribute information database 9, the positional information of a quota is acquired from current several times in the count of acquisition of positional information. About this count, it shall set up separately. The set of the positional information of a quota is passed to the movement vector generation section 44 several times from current [ this ]. In the movement vector generation section 44, the migration track record which can be put on this positional information acquisition time amount several times based on the set of the positional information of a quota is vectorized from current (like a path). Then, the direction and migration pace which are carrying out current migration are known. Here, the direction which may move to a degree is vectorized with reference to the result and the map information database 8 (like a path). The vector of a migration track record is not extended simply, but it normalizes so that it may come on a movable field, a road, a park, etc. by referring to the map information database 8.

[0050] In the action schedule decision section 45, the more possible path as a future migration

place by which two or more generation was carried out in the movement vector generation section 44 is selected about a vector, or the rate of possibility is judged. Therefore, it carries out first based on the action schedule inputted in advance. The keyword relevant to the schedule outputted from the action schedule acquisition section 1 is received in the keyword input section 31. If the location about the keyword is located in a vector top or an area along the railroad line as the path which is possible as a future migration place, it will adopt as a migration prediction result, or a possibility rate will be judged to be high. Moreover, it creates in the system by the configuration explained with the gestalt 1 of operation, and the accumulated behavior analysis result database 10 is also referred to. A destination candidate is extracted based on the trend of the migration result of this user's past, and the whole candidate with the same attribute as this user's attribute, if it is in a vector top or an area along the railroad line as the path which is possible as a future migration place, it will adopt as a migration prediction result, or a possibility rate is judged to be high. To how many which conditions of the trend of the keyword of the inputted schedule, his of the behavior analysis result database 10 action, or the people of the same attribute priority is given sets up separately.

[0051] Consequently, like the path which is possible as a future migration place which had more than one, a vector is carrying out the compound consideration of a rat tail or the possibility rate suitably at some, and a synthetic possibility rate is computed. The action schedule analysis inference result output section 46 outputs this result to the action schedule analysis inference result use section 15.

[0052] In the action schedule analysis inference result use section 15, the result to which a series of actuation from the action schedule acquisition section 1 explained until now to the action schedule analysis inference section 14 might be applied by two or more users is summarized, on condition that an attribute, the target user's data are narrowed down, and it displays as the general trend. Each user can display a display on his own personal digital assistant in the time amount of arbitration, and a location. Moreover, it can be made to display also by the server side to which the action schedule analysis inference section 14 etc. is operating. The processing from the positional information acquisition section 3 to the action schedule analysis inference result use section 15 is continued until a user goes home from a going-out place and turns off a personal digital assistant.

[0053] Gestalt 3. drawing 13 of operation is drawing showing the example of the structure of a system concerning the gestalt 3 of operation. The positional information acquisition section from which 3 acquires the currency information of a mobile in drawing 13 , The positional information are recording section which accumulates the positional information from which 5 was acquired by the positional information acquisition section 3, The positional information analyzor which arranges the positional information in which 6 was accumulated, the map information database in which 8 began the map and general map information, such as store information, was mentioned, The location attribute information database with which the attribute and positional information of a mobile are mentioned in 9, The behavior pattern database with which arrangement analysis of 16 was carried out by the behavior pattern analyzor 17, The geographic information database with which the database of these 8, 9, and 16 was mentioned in 11, the behavior pattern analyzor to which 17 extracts a behavior pattern from the output and the geographic information database 11 of the positional information analyzor 6, and 18 are the behavior pattern analysis result use sections using the result.

[0054] Next, actuation is explained. First, a user possesses a personal digital assistant and goes out. In the meantime, the positional information which the user is moving is always measured at fixed spacing, and is sent to the positional information acquisition section 3. The positional information is accumulated to the geographic information database 11 by the positional information are recording section 5. When a user returns from going out and turns off a personal digital assistant, in a server side, it analyzes based on the positional information accumulated by old going out. The positional information analyzor 6 grasps first at which store and sightseeing spot I stayed based on the accumulated positional information, time information, and the geographic information database 11. The behavior pattern analyzor receives the result and it

records on the behavior pattern database 16 with a user's attribute information, local information, etc.

[0055] A series of above actuation is performed to many users. Consequently, as for the behavior pattern recorded in the behavior pattern database 16, only the number of many users is prepared. The behavior pattern database 16 can be searched with the behavior pattern analysis result use section 18 a condition [ a certain behavior pattern ], and the user who takes the same behavior pattern can be extracted in it. That is, the group division of the user who takes the same behavior pattern can be carried out. To all users belonging to the group of a certain, a certain common processing is carried out and information offer etc. can be made. a user — also in him, he belongs to what kind of group — that check and processing in which e-mail is sent to the person belonging to the same group are attained.

[0056] Here, each element which constitutes this system is explained.

[0057] The actuation after a user possesses a personal digital assistant and goes out is explained. The positional information acquisition section 3 performs the same actuation as the actuation which also explained this with the gestalt 1 of operation. The current position of a personal digital assistant, i.e., a user's current position, is acquired at a certain fixed spacing. The acquisition approach is similarly depended on the approach generally used from the former.

[0058] The positional information are recording section 5 performs the same actuation as the actuation which also explained this with the gestalt 1 of operation. The positional information which is the output of the positional information acquisition section 3 is saved to the field to which reception and the location attribute information database 9 correspond.

[0059] Then, the example of operation after going home from going out whose user brought the personal digital assistant etc. stops action is explained. The example of a configuration of the positional information analyzor 6 is as having been shown in drawing 9 . This performs the same actuation as the actuation explained with the gestalt 1 of operation. That is, after judging [ whether analysis of the individual user who is for a day on the day should be started in the analysis initiation decision section 37, and ], the positional information arrangement integrated section 38 judges at which location I stayed with reference to the location attribute information database 9 and the map information database 8. The positional information by which the stay location was distinguished and arranged is outputted by the positional information arrangement integrated result output section 39.

[0060] Drawing 14 is drawing showing the example of a configuration of the behavior pattern analyzor 17 of this invention. For the positional information arrangement integrated result input section and 48, as for the behavior pattern analysis result output section and 8, in drawing 14 , the behavior pattern generation section and 49 are [ 47 / a map information database and 16 ] behavior pattern databases.

[0061] Next, actuation is explained. In the positional information arrangement integrated result input section 47, the information on the stay location outputted from the positional information analyzor 6 is received first. Based on the information on the stay location which it is arranged and is gone up as a concrete name, with reference to the map information database 8, the behavior pattern generation section 48 is carried out based on an introduction sentence, and is transposed to an abstract stay location or an action name. For example, when going up with "A movie theater" and "Chinese B ****" as positional information, with reference to the introduction sentence to which the map information database 8 corresponds respectively, it permutes by the general action name, such as "he sees a movie" and "eating Chinese food." Deciding a time zone based on the time of day contained in positional information from the first in these, based on a map database, an area is decided and the behavior pattern analysis result output section 49 outputs it to the behavior pattern database 16 in consideration of the sequence of having been inputted.

[0062] Here, the example of a configuration of the behavior pattern database 16 is explained. Drawing 15 is drawing showing the example of a configuration of a behavior pattern database. The behavior pattern database 16 shown in this example is generated by the behavior pattern analysis result output section 49 mentioned above. It is constituted by each user individual's

behavior pattern information 25 classified by individual. Each people another behavior pattern information 25 is constituted by personal attribute information and the behavior pattern information according to area. Personal attribute information is constituted by the discernment ID used for a name, age, an occupation, and internal processing. The behavior pattern information according to area is constituted by enumeration of an area and the action result information 26. The action result information 26 is constituted by a time zone and the contents of action.

[0063] The behavior pattern analysis result use section 18 carries out retrieval use of what accumulated the data created by the above-mentioned behavior pattern analyzor 17 at the time of operating this invention explained until now for many users. Retrieval conditions use a behavior pattern as a search key. For example, the behavior pattern of "seeing a movie", "buying clothes", and "having a meal" is made into retrieval conditions in the "Shibuya" area, and the behavior pattern database 16 is searched. Consequently, the attribute information of the corresponding individual is retrieved. To the ensemble obtained as a result, common processing, for example, information, can be distributed, or it can perform sending the mail which carries out an information offer request to the man of the same behavior pattern as itself etc.

[0064] Of course, it is possible to make an individual attribute into retrieval conditions and to search a behavior pattern. For example, if "his twenties" and a "woman" want to know the behavior pattern taken in the "Shibuya" area, this will be made into a search key and the behavior pattern database 16 will be searched. Consequently, the contents and each number of cases of a behavior pattern are obtained. As for using as a trend information tool, it is [ the macro data obtained ] possible for offer to the third person who wants to use for marketing, and a user to perceive epidemia of the people-of-the-same-age group etc.

[0065] Although the actual action result was subsequently analyzed, referred to and used with the gestalt 3 of gestalt 4. implementation of operation, the gestalt of this operation shows the gestalt in the case of guessing, guessing the next action during action based on the present positional information and the past record, and using. Drawing 16 is drawing showing the example of the structure of a system concerning the gestalt 4 of operation. The positional information acquisition section from which 3 acquires the currency information of a mobile in drawing 16 , The positional information are recording section which accumulates the positional information from which 5 was acquired by the positional information acquisition section 3, The map information database in which 8 began the map and general map information, such as store information, was mentioned, The location attribute information database with which the attribute and positional information of a mobile are mentioned in 9, The behavior pattern database in which arrangement generation was carried out by the behavior pattern analyzor 17 which showed 16 to the gestalt 3 of operation, The location linkage advertising database with which a map and advertising information were mentioned in 19, the geographic information database with which the database of these 8, 9, 16, and 19 was mentioned in 11, and 20 refer to current positional information and the current geographic information database 11. The current behavior analysis section which predicts this next action, and 21 are the advertising information sections.

[0066] Next, actuation is explained. A user possesses a personal digital assistant and goes out. In the meantime, the positional information which the user is moving is always measured at fixed spacing, and is sent to the positional information acquisition section 3. The positional information is sent to the current behavior analysis section 20 while accumulating it to the geographic information database 11 by the positional information are recording section 5. In the current behavior analysis section 20, a user's current action is grasped with reference to the geographic information database 11. And action of the day is accumulated, as retrieval conditions for a behavior pattern, the geographic information database 11 is searched and a behavior pattern including the high location of possibility that it can become the next stay location is guessed. In order to acquire the advertising information related to the high location of possibility that the advertising information section 21 in which the current behavior analysis

section 20 sends the result to the advertising information section 21 can serve as the guessed next stay location, the geographic information database 11 is searched and the advertising information acquired as a result is distributed to a user. At this time, the selection Ruhr of whether to distribute is applicable with an advertiser's intention. The above processing is repeated, while a user possesses a personal digital assistant and is moving. Of course, since the contents of the behavior pattern database 16 have divided for every individual, it is possible to perform processing explained above to two or more users.

[0067] Here, each element which constitutes this system is explained.

[0068] A user inputs a schedule and the actuation after possessing a personal digital assistant and going out is explained. The positional information acquisition section 3 performs the same actuation as the actuation explained with the gestalt 1 of operation. The current position of a personal digital assistant, i.e., a user's current position, is acquired at a certain fixed spacing. The acquisition approach is similarly depended on the approach generally used from the former.

[0069] The positional information are recording section 5 performs the same actuation as the actuation explained with the gestalt 1 of operation. The positional information which is the output of the positional information acquisition section 3 is saved to the field to which reception and the location attribute information database 9 correspond.

[0070] Drawing 17 is drawing showing the example of a configuration of the present behavior analysis section 20 of this invention. For the action are recording section and 52, as for a location attribute information database and 8, in drawing 17 , the behavior pattern retrieval section and 9 are [ 50 / the stay action location decision section and 51 / a map information database and 16 ] behavior pattern databases.

[0071] Next, actuation is explained. First, in the stay action location decision section 50, positional information is judged with reference to the location attribute information database 9, and the contents of action are judged with reference to the map information database 8 from the location at which the user stayed, its introduction sentence, etc. based on the positional information. Since time information is also included in positional information, when the same positional information is recorded a certain amount of time, it is judged that I was staying at the location. Next, the judged contents of action are accumulated in the action are recording section 51. According to time amount progress, the contents of action are accumulated and the behavior pattern from the beginning at the time of the going out is formed.

[0072] Then, the behavior pattern database 16 is searched with the behavior pattern retrieval section 52 by making into retrieval conditions the behavior pattern formed in the action are recording section 51, and it guesses whether possibility that this user will move to what kind of action next is high. The behavior pattern database 16 shall be generated by the behavior pattern analyzor 17 shown in the gestalt 3 of operation. For example, when this user does "purchasing clothes" of the "Shibuya" area now and is doing action of "visiting a bookstore", if the behavior pattern of "purchasing clothes", "visiting a bookstore", "seeing a movie", and "taking a meal" is recorded as record of this user of the behavior-pattern database 16 in the "Shibuya" area, the action predicted to take next will become "Seeing a movie." Moreover, when action of "purchasing clothes", "visiting a bookstore", and "taking a meal" is being carried out, the action predicted to take next as what has become before and after the procedure becomes "Seeing a movie." Furthermore, when this user is acting the "Shinjuku" area now, saying "purchasing clothes", "a bookstore being visited", and "he seeing a movie" and the behavior pattern data of the "Shinjuku" area are not registered into the behavior pattern database 16, the behavior pattern analyzor 17 presupposes the action predicted to take next "A meal is taken." The behavior pattern retrieval section 52 outputs the action, i.e., retrieval conditions, by which current are recording is carried out, the behavior pattern of the behavior pattern database 16 obtained as a result, and the result it was predicted that next acted to the following advertising information section 21.

[0073] Drawing 18 is drawing showing the example of a configuration of the advertising information section 21 of this invention. For 53, as for the distribution advertising decision section and 55, in drawing 18 , the behavior pattern input section and 54 are [ the advertising

distribution section and 19 ] location linkage advertising databases now.

[0074] Next, actuation is explained. The information (the action in which current is accumulated, the searched behavior pattern, and action predicted to take next) which the current behavior analysis section 20 outputted is received in the current behavior pattern input section 53. The distribution advertising decision section 54 acquires the area included in a behavior pattern as usual actuation, and the advertising information which searches the location linkage advertising database 19 based on the action predicted to take next, and corresponds. However, some selection Ruhr is applicable with an advertiser's intention etc. here.

[0075] For example, when this user does "purchasing clothes" of the "Shibuya" area now and is doing action of "visiting a bookstore", if the behavior pattern of "purchasing clothes", "visiting a bookstore", "seeing a movie", and "taking a meal" is recorded as record of this user of the behavior-pattern database 16 in the "Shibuya" area, the action predicted to take next will become "Seeing a movie." Therefore, the advertising information on the movie theater of the "Shibuya" area is usually distributed. However, when there is an advertiser who thinks that he wants to guide the man after taking the action "visits a bookstore" especially as an advertiser's intention to his restaurant, suppose that the advertisement of the restaurant is also distributed. If there is an advertiser of the movie theater of the "Shinjuku" area who wants similarly to guide the person who took "purchasing clothes", "a bookstore being visited", or the action "that takes a meal" in the "Shibuya" area, the advertising information will also be distributed. Thus, distribution sequence is determined in the place which extracted two or more advertisements to distribute. The Ruhr which determines distribution sequence can apply various Ruhr, such as giving priority to what is depended on a prediction result from an individual behavior pattern, or giving priority to an advertiser's intention.

[0076] Here, the example of a configuration of the location linkage advertising database 19 is explained. Drawing 19 is drawing showing the example of a configuration of a location linkage advertising database. The location linkage advertising database 19 shown in this example shall be prepared beforehand. It consists of enumeration of map information and advertising information which can pinpoint a location from lat/long or the name of a place. Advertising information consists of contents of the net of advertisements, such as the behavior pattern and lat/long information which show an advertiser's name, the contents of action made applicable to distribution, and the Ruhr which determines the other candidate for distribution, and a query.

[0077] In the advertising distribution section 55, advertising information is distributed from a location linkage advertising database based on the advertising information determined in the distribution advertising decision section 54, and its sequence.

[0078]
[Effect of the Invention] As mentioned above, according to this invention, the schedule beforehand inputted about the individual and an actual action result can be made into a pair, and the actual behavior pattern to the schedule which everybody planned beforehand can be extracted by searching for the difference in that action. Moreover, when this processing is performed to many candidates, it is effective in the ability to extract action change of the reschedule by the event etc. and extract the information used as the effectiveness measurement for an event sponsor.

[0079] As mentioned above, according to this invention, from the schedule beforehand inputted about the individual, the current position, and the past inclination, from now on, a previous destination can be guessed, each user can be provided with the result of having performed this processing to many users, and each user is effective in becoming possible to act based on this information.

[0080] As mentioned above, as a result of according to this invention becoming possible to extract a behavior pattern from record of migration about an individual and performing this processing to many users, the group division of each user who takes the same behavior pattern can carry out, and each user is effective in becoming possible to act based on the significant information based on the inclination of one's action by offering common directions and information to this group.

[0081] As mentioned above, according to this invention, each user can act based on the significant information based on the inclination of his action by offering the advertising information which guessed the previous destination and doubled it with the guessed destination after this based on the behavior pattern and the current position which were prepared from record of the past migration about the individual. Moreover, for an advertiser, it is effective in becoming possible extracting to the object which can expect effectiveness and distributing an advertisement rather than distributing advertising information to many and unspecified persons.

[Translation done.]